The non-independence of variants in judgment data

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(Joint work with Daniel Ezra Johnson)

Multimethodological approaches to synchronic and diachronic variation
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Linguistic variants

- Contexts where there is "more than one way of saying the same thing". A many-to-one mapping of form to meaning.

(1) *walking* [n] ~ [ŋ]

(2) a. Lo queremos ver.
it want.1PL see.INFIN
'We want to see it.'

b. Queremos verlo.

The (in)dependence of variants

- A standard assumption in the Labovian lang. change literature is that linguistic variants are interdependent in speakers' probabilistic knowledge (Cedergren & Sankoff 1974, Sankoff & Labov 1979, Kroch 1989, 2001).
- Required in models of production data, where, for a context with n variants, the probability of use of variant n (v_n) will be

$$1 - \sum_{i=1}^{n-1} Pr(v_i)$$

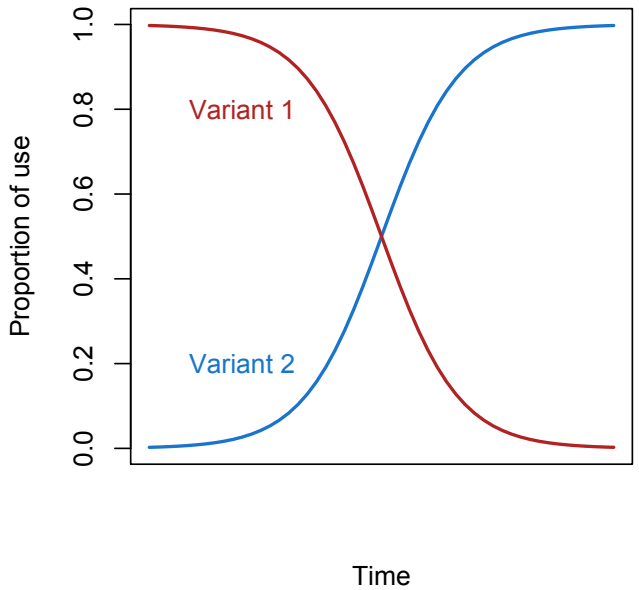


Figure 1: Change in usage of two variants

The (in)dependence of variants

- Recent results suggest that that acceptability judgments for competing variants closely mirror usage frequencies (Manning, 2003; Bresnan and Ford, 2010; Bader and Häussler, 2010; Melnick et al., 2011).
- A question that arises in this light is whether acceptability of competing variants show interdependence in designs in which judges evaluate variants independently.

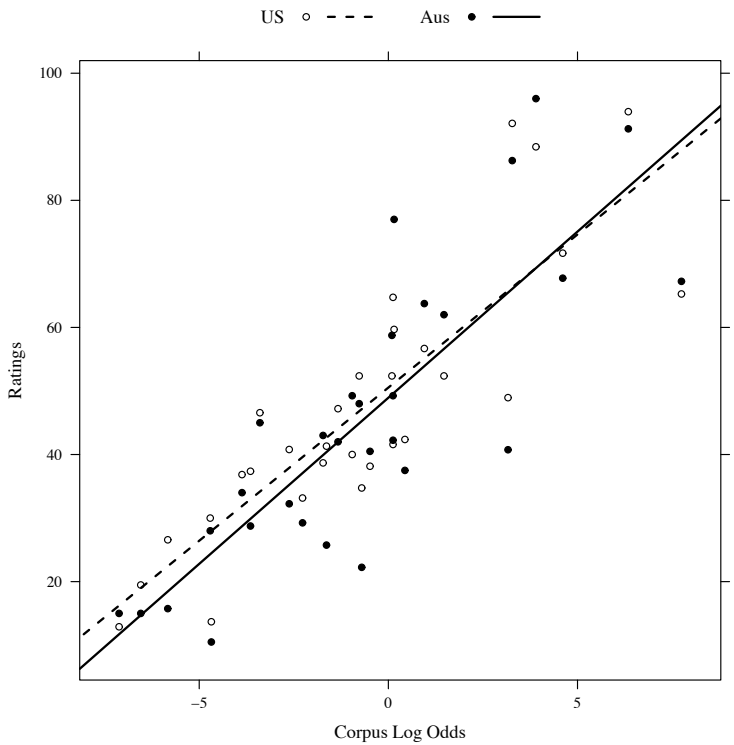


Figure 2: Mean PP-frame ratings for 30 items by corpus log odds (Bresnan and Ford, 2010)

Main claims and outline:

- ***Main claims:*** Results from three large-sample judgment experiments, suggest that within-subject and between-subject factors affect variants partially independently. We suggest that judges implicitly compare variants in judgment tasks when they are close competitors, with largely overlapping sets of meanings ("true variants").
- ***Outline***:

  Part 1: Introduction
  Part 2: English quotative constructions (N=123)
  Part 3: English particle verb constructions (N=237)
  Part 4: Object order in Norwegian passives (N=500)
  Part 5: Conclusion

Change in English quotative verbs

- Change in English verbs of quotation, very well described in corpus-based literature (Butters, 1982; Blyth et al., 1990; Tagliamonte and Hudson, 1999; Buchstaller, 2004; Tagliamonte and D'Arcy, 2007).

(3) She said/was like, "Shut up."

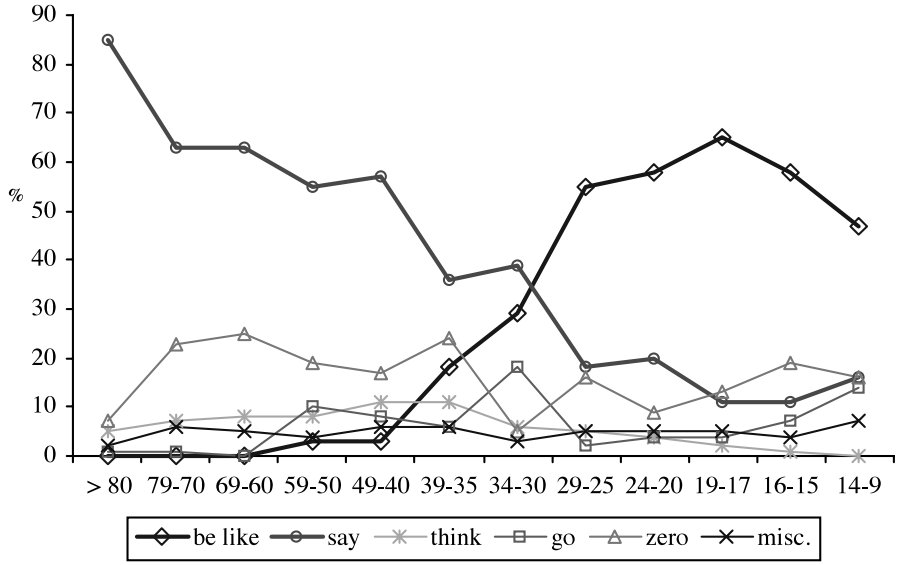


Figure 3: Change in quotative expressions in Toronto (Tagliamonte & D'Arcy 2007)

A judgment experiment

- 123 self-described native speakers of Am. English, aged 18-73 (M=31.1, SD=11.6); 73 women, from different dialect areas, all Uni. educated.)
- A 2x6 design crossing verb (*be like* vs. *say*) with 6 context conditions biasing stative vs. eventive interpretations of the verb (progressives, imperatives, *force . . . to*, *do*-pseudoclefts, *for*-adverbials) or a "baseline" condition (Dowty, 1979; Rothstein, 1999).
- Web-based magnitude estimation experiment.

Results

- Apparent time increase in acceptance of *be like*, but no decrease in acceptability of *say*.
- Not expected on an approach where both variants are affected inversely in an equal way.

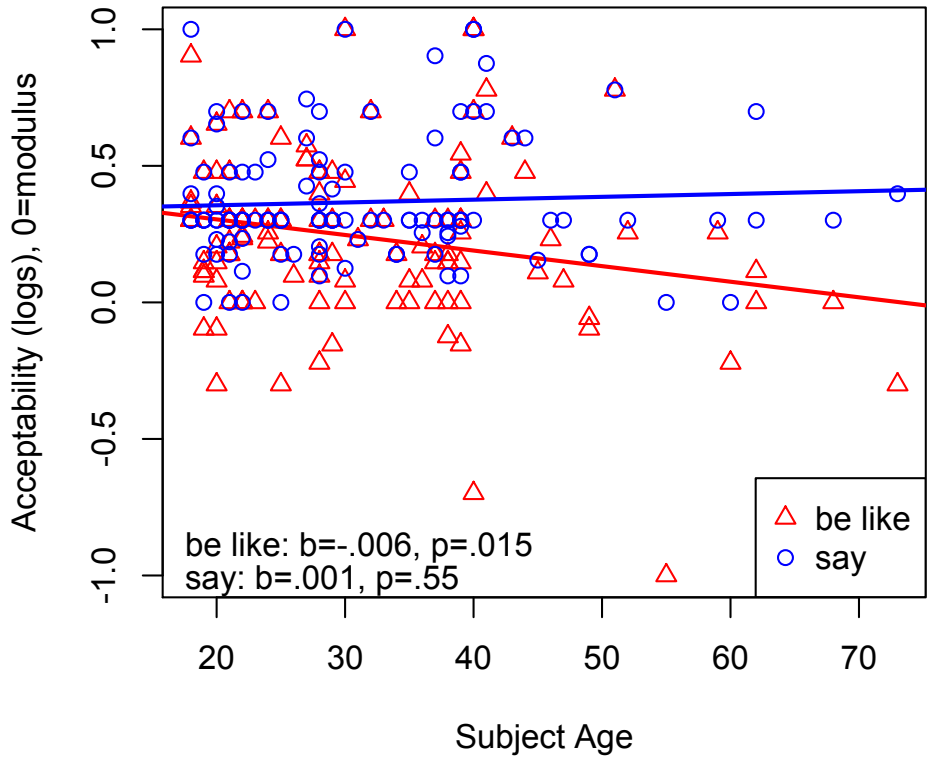


Figure 4: Acceptability of quotatives by participant age (Haddican et al., 2015)

Non-competition between *be like* and *say*

- But we might worry whether *be like* and *say* are true competitors, given different meanings they can have.
- First, a reported thought interpretation is available for *be like* but not *say*:

(4) Obelix was like, “Ok, fine.”
‘Obelix seemed to be thinking, “Ok, fine.”’
‘Obelix said, “Ok, fine.”’

(5) Obelix said, “Ok, fine.”
*‘Obelix seemed to be thinking, “Ok, fine.”’
‘Obelix said, “Ok, fine.”’

Non-competition between *be like* and *say*

- Second, reported speech *be like* but not *say* has a paraphrase implicature:

(6) Word for word, she said, "I promise to be there."

(7) #Word for word, she was like, "I promise to be there."

- This meaning is cancellable:

(8) A: She was like, "I promise to be there."
B: Word for word?
A: Yes.

(9) She was like, "I like apples." In fact, that was exactly what she said.

Quotatives summary

- In judgement data, an increase in acceptance of *be like* quotatives (in apparent time) does not co-occur with a decrease in acceptability of another variant *say*.
- This does not align with findings from corpus data, where age effects on *be like* and *say* mirror each other.
- We have noted that the sets of meanings that quotative expressions with *be like* and *say* can have may diverge.
- If, in judging variants, subjects implicitly consider the availability of competitors, then the fact that *be like* and *say* are not true variants may be relevant.

The particle verb alternation

(10) Kim cut the melon open. [VOP]

(11) Kim cut open the melon. [VPO]

- Two main syntactic approaches. The *complex head* approach (Johnson, 1991; Dehé, 2002).

(12) [VP [V V Prt] Obj]

- The *small clause* approach (Kayne, 1985; Den Dikken, 1995, 2010; Svenonius, 2010; Haddican and Johnson, 2014).

(13) [VP V [PP Obj P]]

Weight effects

- A frequently reported finding in corpus data —"light" objects favor VOP, "heavy" objects favor VPO (Kroch and Small, 1978; Gries, 2001, 2003; Lohse et al., 2004).
- For head-initial Ls, "end-weight" (Behaghel, 1909; Quirk et al., 1972).
- Lohse et al. (2004) explain weight effect in terms of a more general processing constraint: processing is facilitated when the material intervening between members of a syntactic dependency is minimized (Hawkins, 1995, 2004). Both imply effect on VOP only.

(14) Kim cut the big heavy melon open. [VOP]

(15) Kim cut open the big heavy melon. [VPO]

Diachronic effects

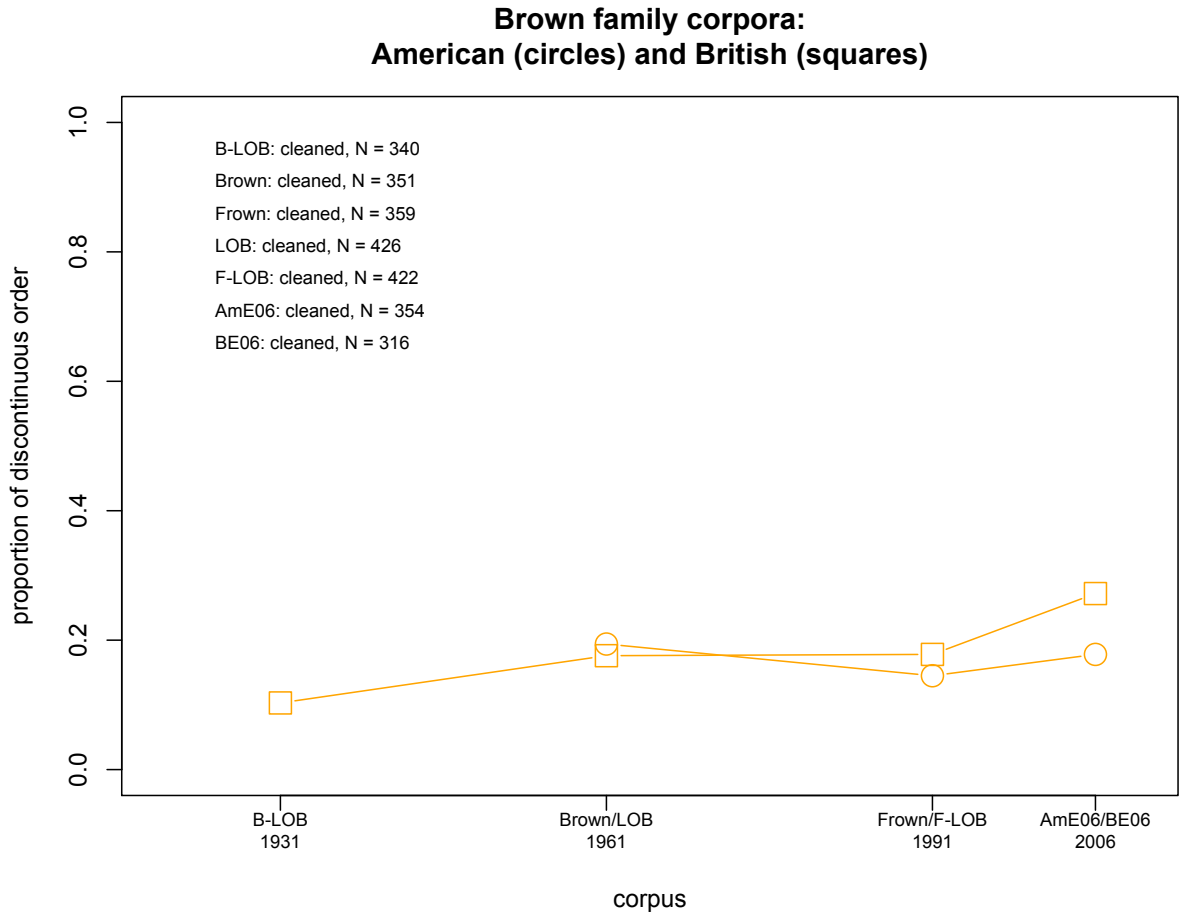


Figure 5: Change toward VOP orders—Brown corpora results

Diachronic effects

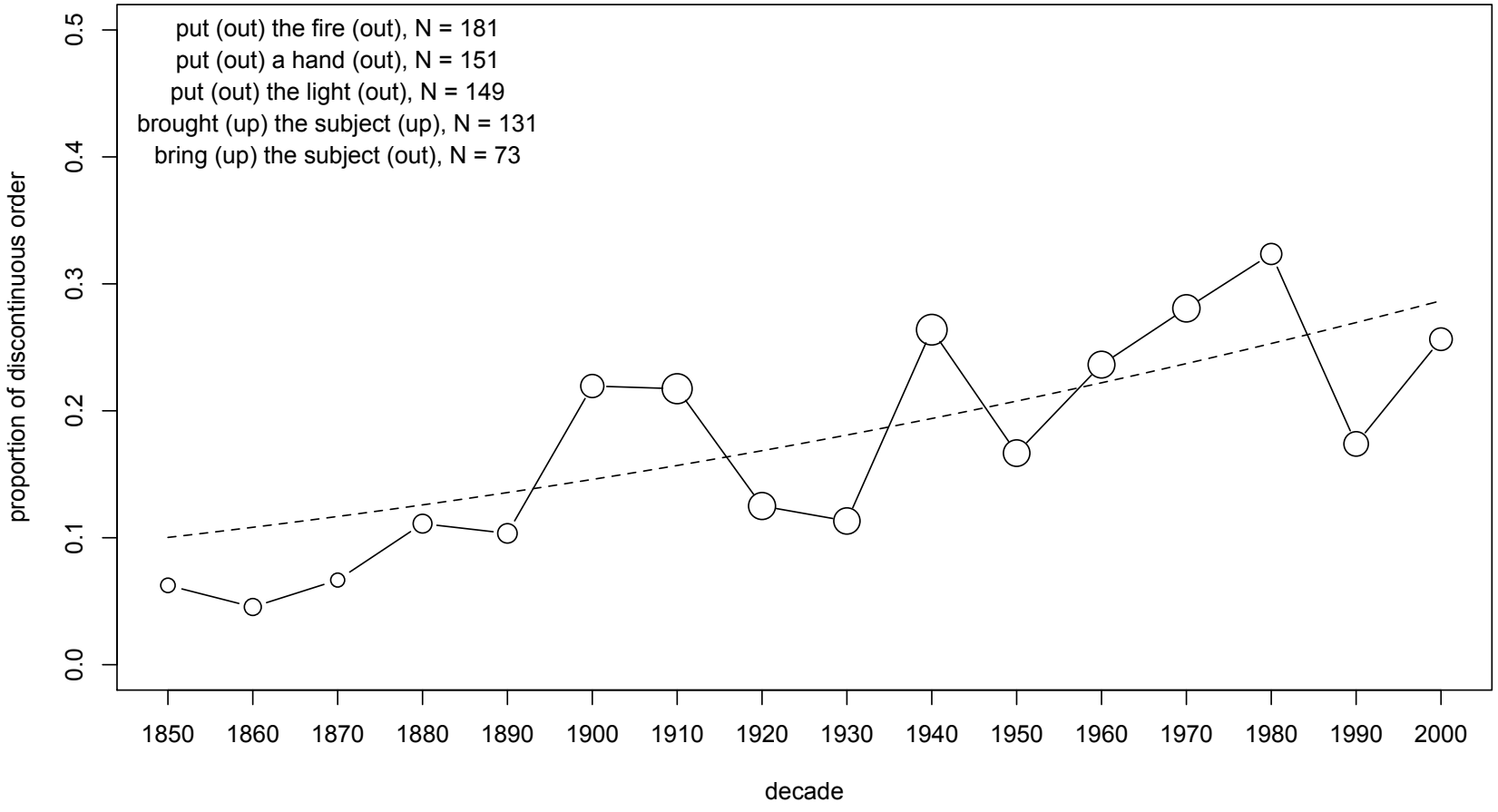


Figure 6: Change toward VOP orders—COHA results

An experiment

- 113 US vs. 126 UK subjects, age 18-84 (mean 30)
- 2x2x2 design crossing: *order*, *object weight* (3 vs. 7 syllables), *object focus* (new vs. old information).

Object Weight	**VOP**	**VPO**
Light	*. . . cut the melon open*	*. . . cut open the melon*
Heavy	*. . . cut the heavy juicy melon open*	*. . . cut open the heavy juicy melon*

Table 1: Four conditions

- 32 lexicalizations created, also 50% fillers. Normalized using z-scores based on fillers.
- Web-based questionnaire using Ibex Farm (Drummond, 2013).

Results for participant age and object weight

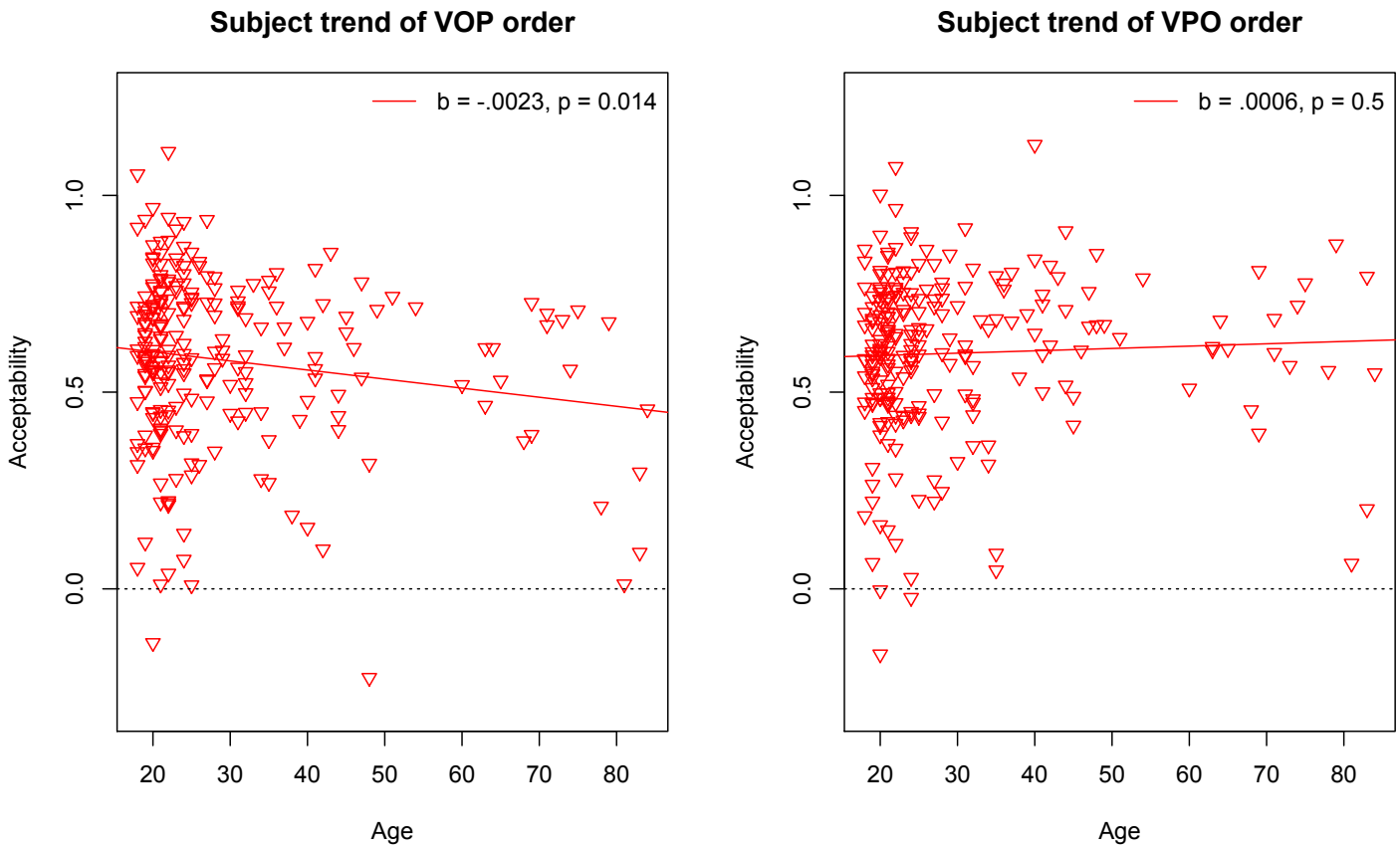


Figure 7: Estimated effects of object weight on acceptability of VOP and VPO orders by speaker

Age effects

- The figure shows that this change has co-occurred with an apparent time increase in the acceptability of the VOP order, but no significant change in the acceptability of the VPO order.
- This is not expected on an approach to change in acceptability where both variants are affected inversely in an equal way.

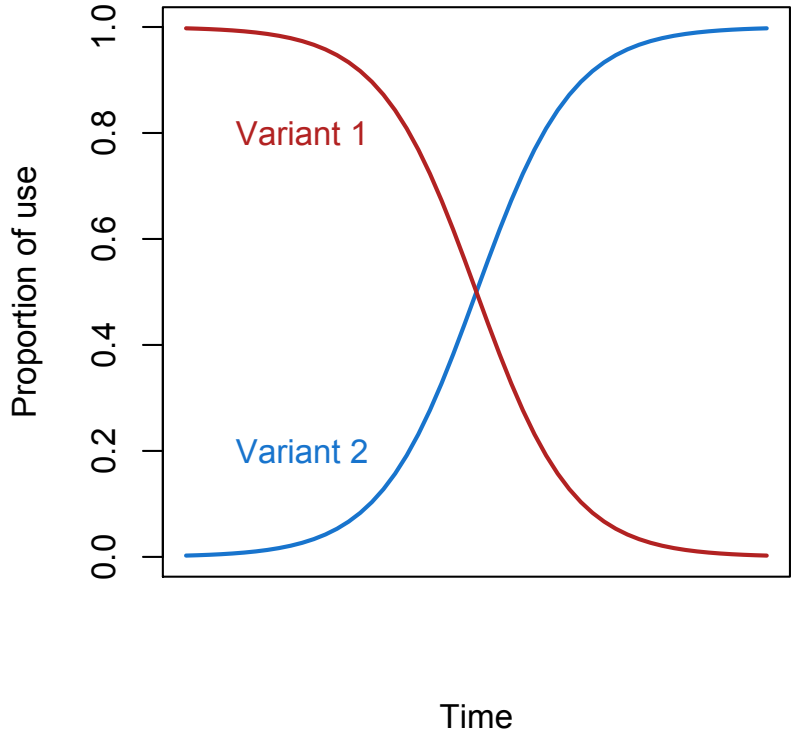


Figure 8: Change in usage of two variants

Object weight effects

- The effects of weight on the two orders, however, do *partially* mirror each other.
- Increasing the weight of the object from from three to seven syllables disfavors the Verb-Object-Particle order 50% more than doing so favors the Verb-Particle-Object order.

Object Weight	**VOP**	**VPO**
Light	0.618	0.575
Heavy	0.553	0.617
$\|\Delta\|$	0.065	0.042

Table 2: Average acceptability for four conditions

Object weight effects

- The result for the VOP order can be explained by Lohse et al.'s (2004) processing-based account. A heavier object separating the verb and particle increases the size of the verb-particle processing domain.
- For object weight to affect the VPO order is unexpected from this perspective, since a heavier final object NP should have no effect at all on the size of the processing domain for the relevant dependency relation.
- This suggests that subjects' evaluations of the acceptability of a given syntactic structure is affected by the availability of a competing structure in the same environment.

Particle verbs summary

- VOP and VPO show a partially-inverse relationship on average, but no interdependence is seen in diachrony.
- Why not? VOP and VPO are close variants, but word order is sensitive to focus (Bolinger, 1971; Svenonius, 1996; Kayne, 1998; Dehé, 2002; Haddican and Johnson, 2014).

(16) Q: Who will you pick up?
A: I'll pick (?the girls) up (the girls).

(Svenonius, 1996)

(17) Q: How are Turid and Ingrid going to get here?
A: I'll pick (the girls) up (?the girls).

(Svenonius, 1996)

Passive symmetry in Norwegian

- Norwegian is a "symmetric passive" language, meaning that in passives of double object constructions, both theme and goal arguments may passivize, as illustrated in (18).

(18) ***Norwegian***

a. Jens ble gitt bok-en.
Jens was given book-the
'Jens was given the book.'

b. Bok-en ble gitt Jens.
Book-the was given Jens
'The book was given (to) Jens.'
(Haddican and Holmberg, 2012)

Passive symmetry in Norwegian

- Anagnostopoulou (2003) proposed that Th-passivization is fed by short theme movement, as in (19).

(19) ***Theme passivization on the locality approach***
[$_{\text{TP}}$ Theme T [$_{\text{vP}}$ v [$_{\text{XP}}$ ~~Theme~~ [$_{\text{XP}}$ Goal [$_{\text{YP}}$ ~~Theme~~]]]]]

- Anagnostopoulou (2003) suggested that this same theme movement feeds Th-G orders in object shift (OS):

(20) ***Norwegian double object OS***

a. Elsa ga ham den ikke.
Elsa gave him it not
'Elsa didn't give him it.'

b. %Elsa ga den ham ikke.

Design

- 500 subjects (age 18-81, mean 39)
- 2x3 design
- 4 items/condition

Context	**Th-G**	**G-Th**
Passives	Den ble gitt ham. 'It was given him.'	Han ble gitt den. 'He was given it.'
Active OS	Elsa ga den ham ikke. 'Elsa didn't give it him.'	Elsa ga ham den ikke. 'Elsa didn't give him it.'
Active-non-OS	Elsa har ikke gitt den ham. 'Elsa hasn't given it him.'	Elsa har ikke gitt ham den. 'Elsa hasn't given him it.'

Table 3: Example sentences for six conditions

Results

- Theme-goal orders in active contexts *very* marginal in our data.
- Both passive orders accepted readily.
- No correlation between acceptance of Th-G orders in actives and passives.

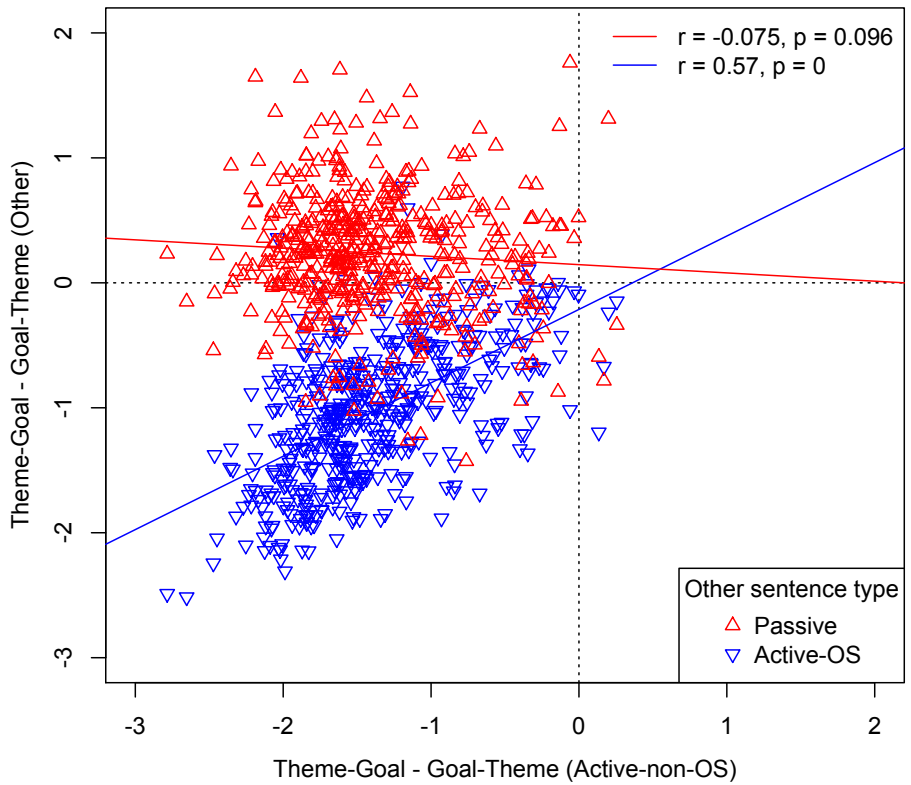
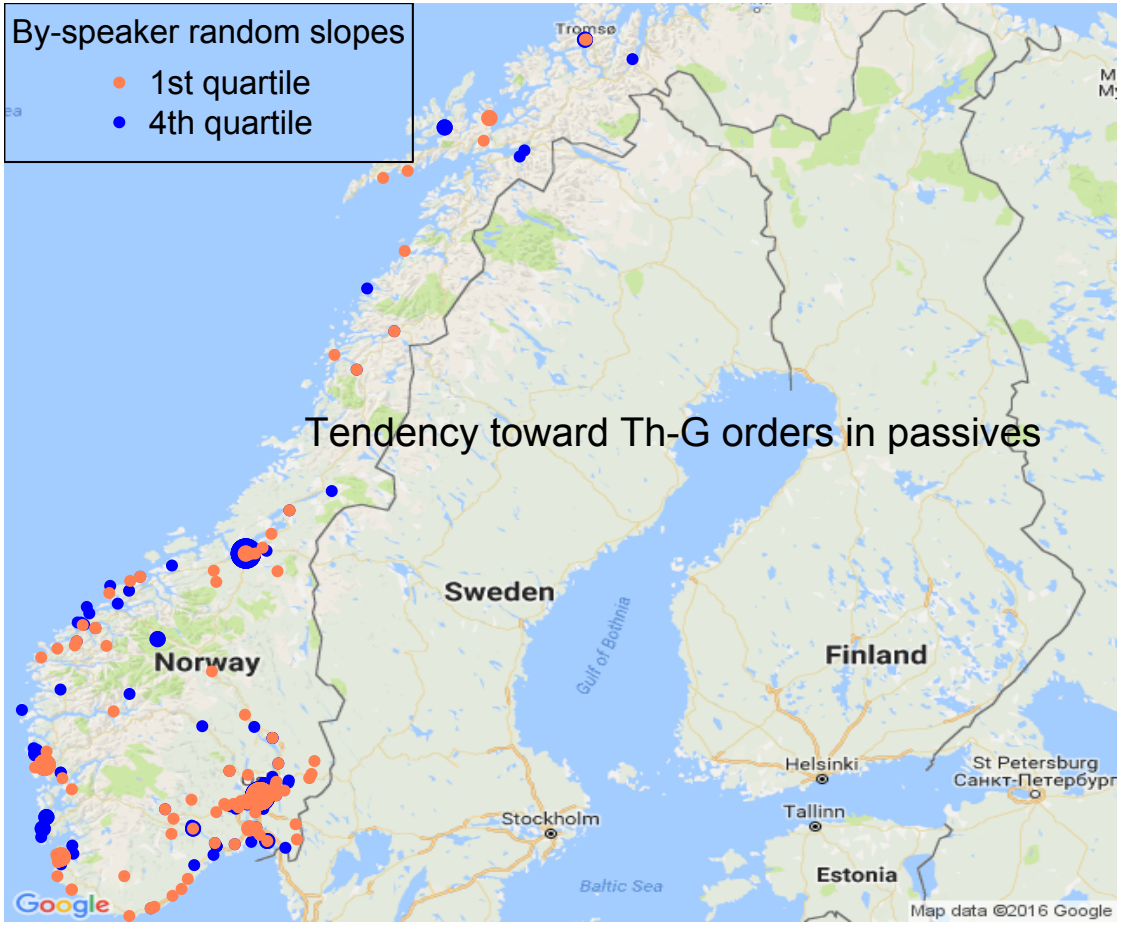


Figure 9: Preference for Th-G over G-Th order (Passive and Active OS compared to Active-non-OS)

Results

- Tendency toward Th-G order by speaker.
- No difference in historically dative area of central Norway (Eyþórsson et al., 2012).
- No stylistic difference between variants.



Diachronic effects: Norwegian passives

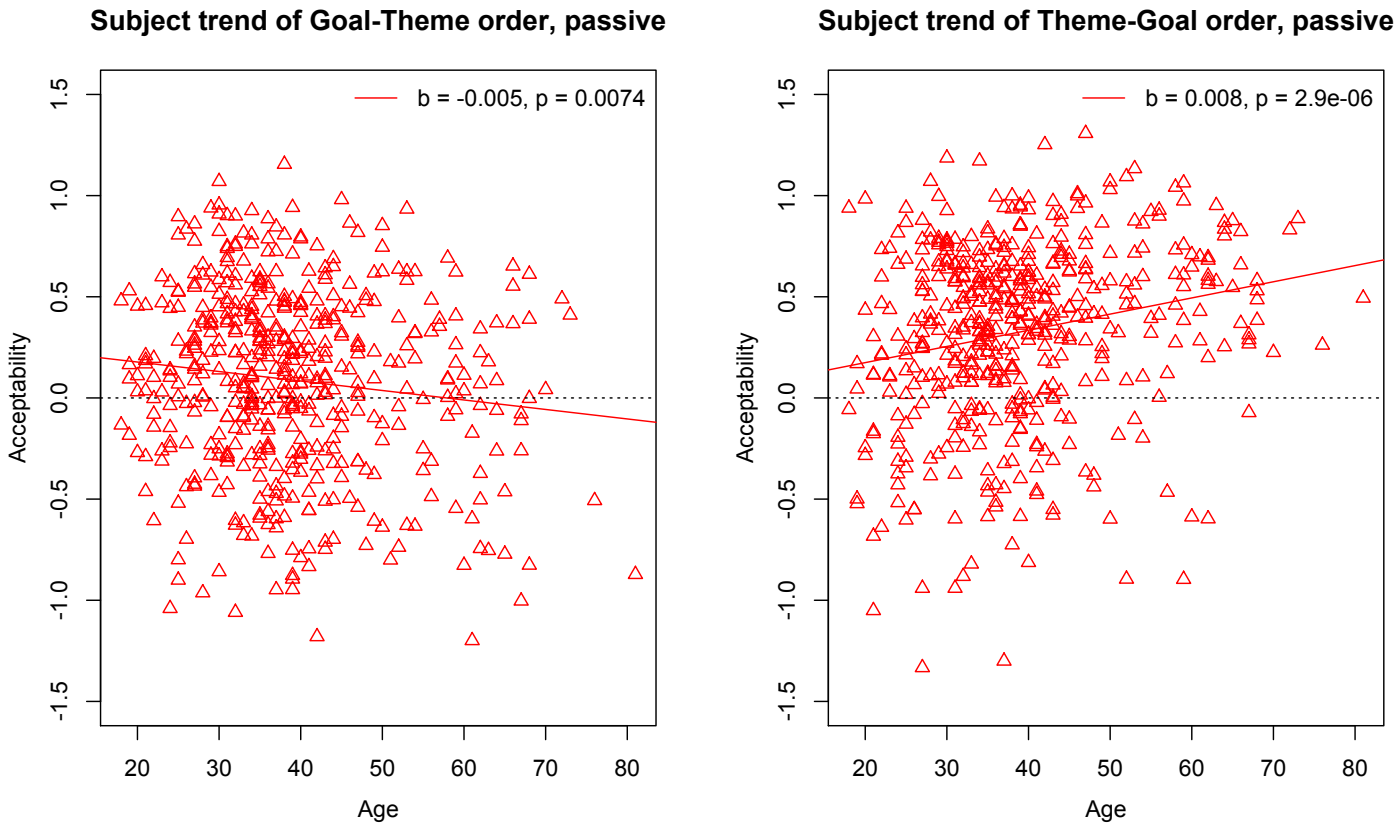


Figure 10: Acceptability of goal-theme *(Han ble gitt den)* and theme-goal *(Den ble gitt han)* word orders in the passive, by speaker

Diachronic effects: Norwegian passives

- Mirroring slopes for the effect of age is exactly the pattern we expect if grammatical change reflects incremental change in the probability of choosing one abstract representation vs. a competing one—"grammar competition" in Kroch's (1989; 1994) terms.
- Importantly, there is no meaning difference between these variants reported in the literature (Holmberg and Platzack, 1995; Anagnostopoulou, 2003)

Main points

- Much has been learned from the standard methodology that treats variants of a linguistic variable as choices (or the input and output of rules/processes). From this perspective, binary variants always appear to respond inversely to the factors affecting variation.
- However, in some respects variants can also behave independently.
- Our results suggest that, for different (within- and between-speaker) effects, one and the same variable can affect the variants independently or not.
- We have suggested that whether or not subjects evaluate a variant in relation to an alternative form is determined by how closely the variants compete for expression.
- A predictive model of these effects should surely be a goal of experimental and diachronic linguistics.

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